



South Mountain Transportation Corridor Study

Citizens Advisory Team
Draft Technical Report Summary

Hazardous Materials

Why document analysis of hazardous materials in the Environmental Impact Statement?

Hazardous materials in the study corridor could influence construction and operation of a freeway like the proposed South Mountain Freeway:

- Contaminated soil near leaking underground storage tanks may be encountered during construction.
- Underground storage tanks may require removal or relocation because of freeway construction.
- Drywells would need to be identified prior to identifying construction staging areas because materials, such as fuel, used by construction equipment could reach groundwater if released near a drywell.

What kind of impacts could occur from construction?

- Workers could encounter soil contaminated with hazardous materials during construction activities.
- An accidental release of equipment fuel could occur during construction.
- The contractor may need to remove or relocate aboveground or underground storage tanks during construction.

How do the alternatives and alignment options' construction-related impacts differ?

- The riskiness of hazardous materials sites that may be encountered during construction are:

Alternatives/Alignment option	High-priority sites	Mid-priority sites	Low-priority sites
W55 Alternative	2	5	12
W71 Alternative	1	1	5
W101 Alternative and options	0	0	2
E1 Alternative	0	0	0

- A high-priority risk site is classified as such because it could entail high remediation costs and could involve coordination with multiple regulatory agencies at both federal and state levels. These sites may involve soil and/or groundwater contamination that would require an extensive or long-term remediation effort.
- A mid-priority risk site is classified as such because, owing to the nature of operations, it would have the potential to affect soil and groundwater beneath the site. Mid-priority sites include release sites that have been remediated or cleaned-up as well as sites where no substantial impacts to soil or groundwater have been reported.



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- A low-priority risk site is classified as such because either no hazardous materials release has been recorded at the site or such a release has occurred but has been remediated, has been investigated and does not require remediation or is unlikely to require large-scale remediation.
- The majority of hazardous materials sites—and all high- and mid-priority sites—are in alternatives W55 and W71. Hazardous materials-related impacts would be most likely to occur if these alternatives or alignment options were to be selected.

What kind of freeway operational impacts (postconstruction) would occur?

- An accidental release of hazardous materials could occur during transport.

How would the action alternatives differ in operational impacts?

- All action alternatives, when operating, would have similar kinds and levels of hazardous materials impacts.

What if the project were not constructed?

- No project-specific impacts would be experienced.
- Identified hazardous materials sites may adversely affect planned development unrelated to the proposed South Mountain Freeway.

Would the action alternatives cause any specific and/or unique impacts?

- Alternatives W55 and W71 would be most likely to affect or be affected by hazardous materials.
- Additional hazardous materials investigation and/or mitigation may be necessary if one of these alternatives were to be selected.

What could ADOT do to reduce or avoid impacts?

- Avoid underground and aboveground storage tanks during the EIS and design process.
- Conduct additional investigations of identified hazardous materials areas to evaluate the extent of contamination.
- A full understanding of the hazardous materials impacts would not be known until site specific assessments can be done. This process would not begin until after the Record of Decision and the property acquisition process begins.

What could ADOT do to reduce construction impacts?

- Determine hazardous materials that would be used during construction and prepare a Hazardous Waste Management Plan for handling of hazardous materials during construction.
- Avoid drywells during hazardous materials staging.



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- Following the Record of Decision (if an action alternative were to be selected), conduct asbestos inspections of structures that would be demolished and dispose of asbestos-containing materials in certified landfills.
- Avoid use of asbestos-containing materials during construction.
- Develop an on-site Health and Safety Plan for construction activities.
- Develop and coordinate emergency response plans with local fire authorities, local hospitals and certified emergency responders for hazardous materials or chemical spills.

What could ADOT do to reduce hazardous materials impacts once the freeway were operational?

- Develop, implement, and maintain a list of designated and restricted hazardous materials routes.
 - The federal government has given the states the responsibility for designating and enforcing the routes.
 - A local agency could request that ADOT restrict hazardous material transport on the proposed action; however, ADOT would be required to analyze this request and adopt or reject the request based on its merits.
 - ADOT's decision whether to restrict hazardous material transport is based on a number of considerations, including, but not necessarily limited to, public safety and the presence of acceptable alternative routes.
- Coordinate designated hazardous materials routes with local fire authorities, local hospitals and certified emergency responders for hazardous materials or chemical spills.

Measures will be presented in the Draft EIS and would be finalized during the final design process if an action alternative were to be selected.

Are the conclusions presented in this summary final?

Quantitative findings relative to impacts could change. Potential changes would be based on the following and would be presented to the public during the Draft EIS, Final EIS and, if an action alternative were selected, in the final design process:

- Refinement in design features through the design process
- Updated aerial photography as it relates to rapid growth in the Western Section of the Study Area
- Ongoing communications with the City of Phoenix regarding measures to minimize harm to Phoenix South Mountain Park/Preserve
- Ongoing communications with the Gila River Indian Community (Community) regarding granting permission to study action alternatives on Community land
- Ongoing consideration of public comments



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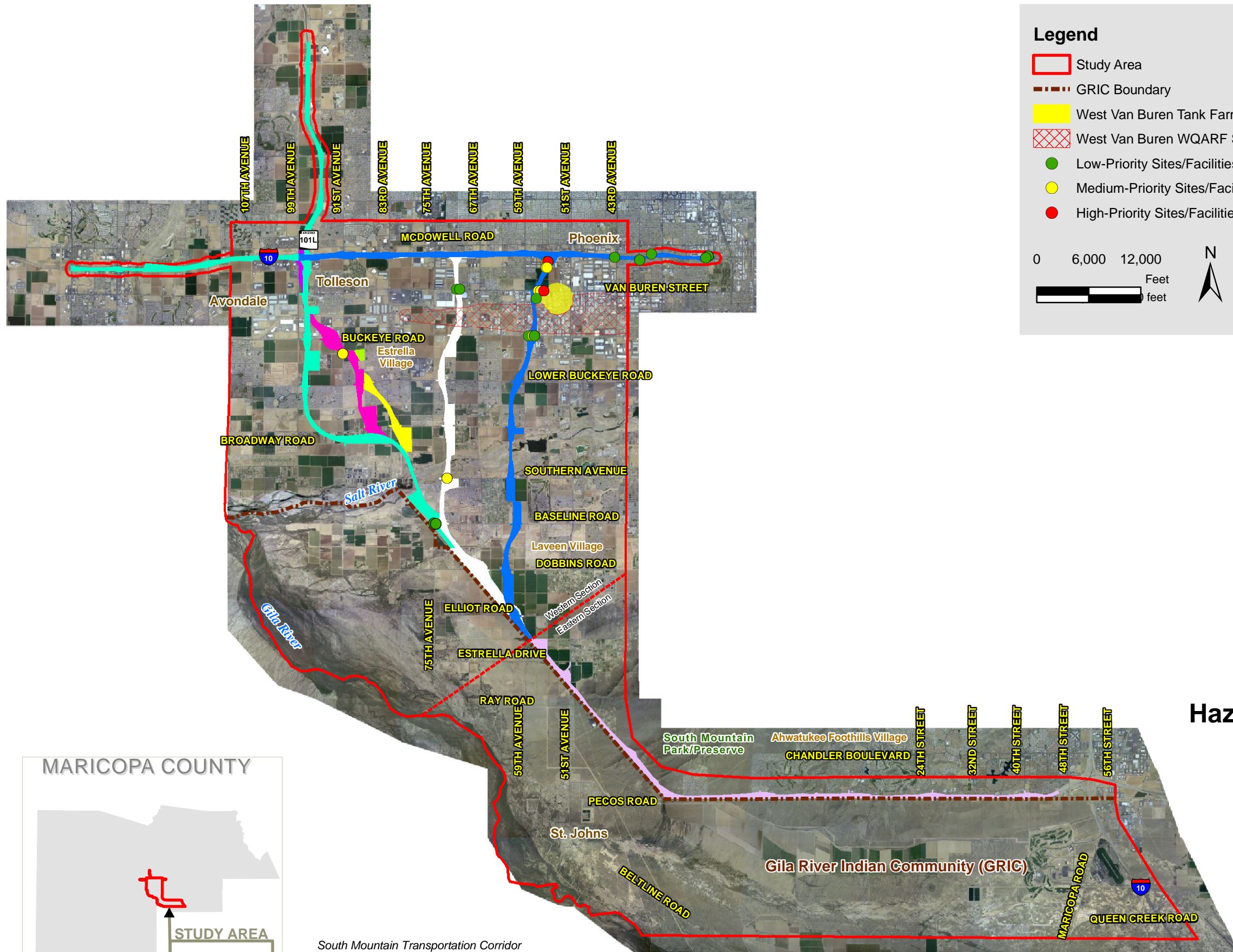
Hazardous Materials

- Potential updates to traffic forecasts as regularly revised by the Maricopa Association of Governments
- Potential changes regarding updated census data
- Regularly updated cost estimates for construction, right-of-way acquisition, relocation and mitigation

Even with these factors possibly affecting findings, the study team anticipates effects would be equal among the alternatives and, consequently, impacts would be roughly comparable. This assumption would be confirmed if, and when, such changes were to occur.

As a member of the Citizens Advisory Team, how can you review the entire technical report?

The complete technical report is available for review by making an appointment with Mike Bruder at 602-712-6836 or Mark Hollowell at 602-712-6819.



Hazardous Materials Report

Hazardous Sites or Facilities

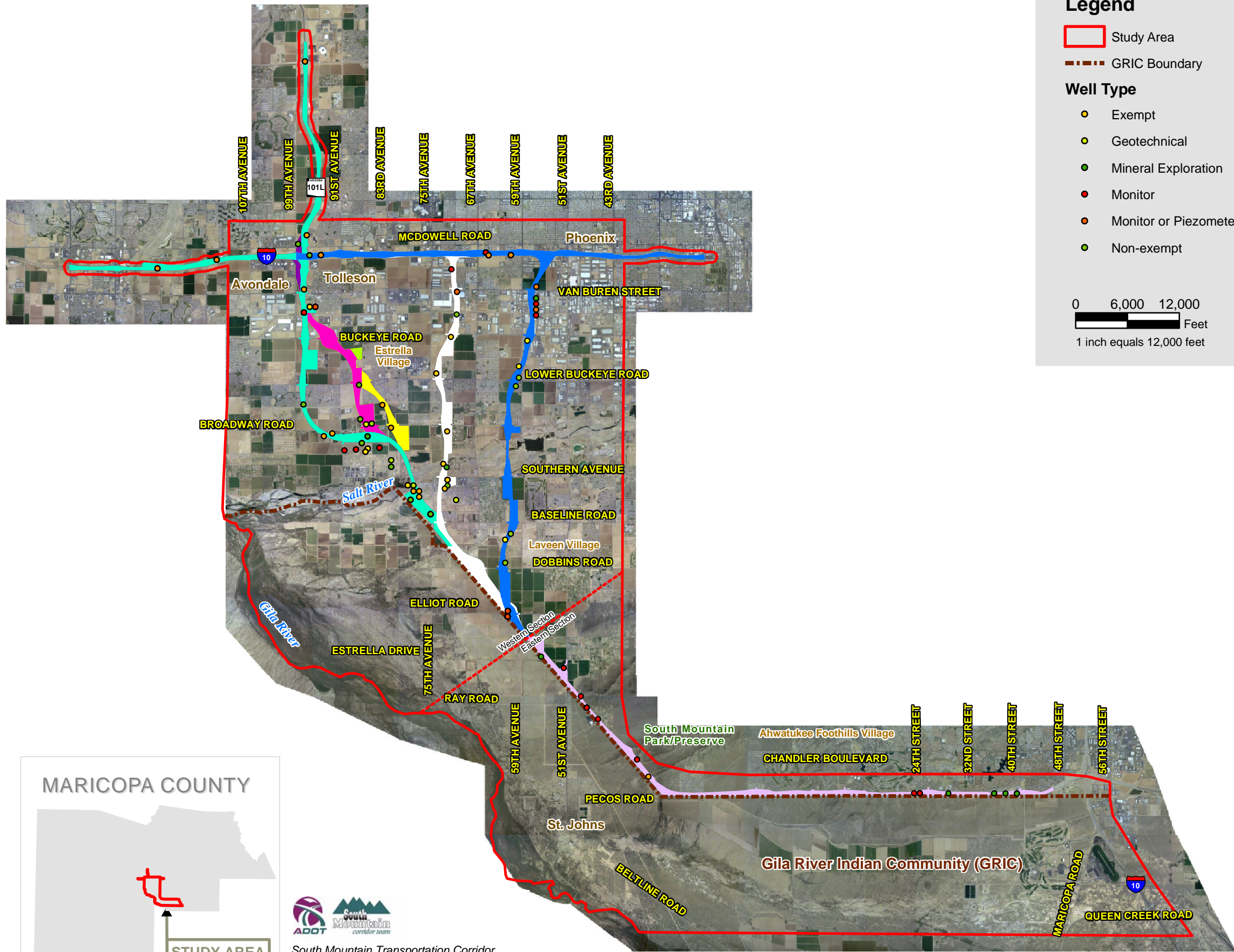
South Mountain Freeway Transportation Corridor Study

Aerial Photography Date: April 2006

South Mountain Transportation Corridor
TRACS No. 202L MA 054 H5764 01L
Federal Aid Number FHWA-AZ-EIS-202-D

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Legend

- Study Area
- GRIC Boundary

Well Type

- Exempt
- Geotechnical
- Mineral Exploration
- Monitor
- Monitor or Piezometer
- Non-exempt

Western Section Alternatives

- W55
- W71
- W101WPR
- W101WFR
- W101CPR
- W101CFR
- W101EPR
- W101EFR

Eastern Section Alternative

- E1

0 6,000 12,000
Feet
1 inch equals 12,000 feet



Hazardous Materials Report

ADWR Well Locations

South Mountain Freeway
Transportation Corridor Study

Aerial Photography Date: April 2006

MARICOPA COUNTY

STUDY AREA



South Mountain Transportation Corridor
TRACS No. 202L MA 054 H5764 01L
Federal Aid Number FHWA-AZ-EIS-202-D

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Utilities\hazsites_wells.mxd



South Mountain Transportation Corridor Study

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Energy

Why study energy consumption in the Environmental Impact Statement (EIS)?

International energy demands are steadily increasing each year. This increasing demand demonstrates the need to make wise decisions when considering current and future energy consumption in our country. Considering our population continues to grow rapidly in the West, demand for energy (for heating, cooling, travel and manufacturing) will also continue to grow in the region.

A project like the proposed South Mountain Freeway is a major transportation investment. It is important to consider whether such an investment would produce prolonged energy savings or whether the No-Action Alternative would provide better energy savings.

Primary energy use during operation of the proposed freeway would be fossil fuel used by vehicles traveling along the freeway. Fuel consumed in periodic roadway maintenance would be negligible in comparison. Construction of any of the action alternatives would mean similar fuel consumption. While the No-Action Alternative would consume no fuel for construction because the proposed project would not be built, other roadway projects and improvements would be developed in the general Study Area to address increasing travel demand. The study team assumed that total needed for construction under the No-Action Alternative would not differ considerably from the total fuel consumed for construction of any of the action alternatives.

For the purposes of the EIS, the study team estimated the energy needed to construct and operate the proposed South Mountain Freeway and compared this projected consumption against the No-Action Alternative over a 20-year period.

How is energy consumption calculated?

In estimating energy consumption over a 20-year period, the study team considered such factors as:

- The predicted total vehicle miles traveled over that course of time
- The predicted total vehicle hours spent in travel over that course of time
- The anticipated vehicle mix (i.e., cars, light trucks, heavy trucks and motorcycles) that would use the facility if constructed as well as the fuel mix (regular, diesel and alternative).
- Anticipated fuel economy (in miles per gallon) of the vehicle types as provided by the U.S. Department of Transportation Bureau of Transportation Statistics

What were the results of the analysis?

The No-Action Alternative would have the least vehicle miles traveled of any of the alternatives. However, this alternative would also have the highest vehicle hours traveled of any of the alternatives because of increased congestion on the remainder of the regional freeway system and local arterial street network. Because fuel efficiency decreases at slower speeds (i.e., fuel consumption increases approximately 30 percent when speeds drop from 30 mph to 20 mph; a drop from 30 mph to 10 mph results in a doubling of fuel consumption), the No-Action Alternative was projected to consume the most energy of any of the alternatives.



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Energy

The No-Action Alternative was estimated to consume approximately 733 million gallons of fuel per year; the action alternatives (any one of the Western alternatives plus the Eastern (E1) Alternative) were estimated to consume between 541 million to 562 million gallons of fuel per year.

Are the conclusions presented in this summary final?

Quantitative findings relative to impacts could change. Potential changes would be based on the following and would be presented to the public during the Draft EIS, Final EIS and, if an action alternative were selected, in the final design process:

- Refinement in design features through the design process
- Updated aerial photography as it relates to rapid growth in the Western Section of the Study Area
- Ongoing communications with the City of Phoenix regarding measures to minimize harm to Phoenix South Mountain Park/Preserve
- Ongoing communications with the Gila River Indian Community (Community) regarding granting permission to study action alternatives on Community land
- Ongoing consideration of public comments
- Potential updates to traffic forecasts as regularly revised by the Maricopa Association of Governments
- Potential changes regarding updated census data
- Regularly updated cost estimates for construction, right-of-way acquisition, relocation and mitigation

Even with these factors possibly affecting findings, the study team anticipates effects would be equal among the alternatives and, consequently, impacts would be roughly comparable. This assumption would be confirmed if, and when, such changes were to occur.

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Geotechnical

Why document the analysis of geotechnical conditions in the Environmental Impact Statement (EIS)?

Geotechnical conditions refer to the soil and bedrock characteristics of a particular area. These characteristics in the Study Area could influence how a project like the proposed South Mountain Freeway would be designed and ultimately constructed:

- Rock excavation and construction of rock slopes would be required as part of construction of the Eastern Section.
- Both expansive and consolidation-prone soils in the shallow profile may influence the design of freeway sections.
- Shallow groundwater may influence the design of freeway elements in the Western Section.

What kind of impacts would occur from construction?

- Excavation or placement of fill could alter existing ground slopes and materials.
- Excavation could alter existing rock slopes in the Eastern Section.

How do the alternatives differ in construction-related impacts?

- Despite variations in groundwater depths of from 9 to 134 feet, Western Section action alternatives appear to have no distinct differences in construction-related impacts.
- The Eastern Section alternative would require rock excavation.
- Construction of the Eastern Section alternative would likely not encounter shallow groundwater.

What kinds of freeway operational impacts (postconstruction) would occur?

- The Western Section alternatives are not expected to cause operational impacts.
- Because Eastern Section rock slopes would be designed using industry-accepted guidelines, no operational impacts are expected.

How do the alternatives differ in operational-related impacts?

- Neither the Eastern Section alternative nor any one of the Western Section alternatives would differ in operational impacts.

What if the project were not constructed?

- No project-specific impacts would be experienced.

Would any of the action alternatives cause specific and/or unique impacts?

- None of the Western Section action alternatives would cause specific and/or unique impacts.



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Geotechnical

- The Eastern Section alternative would require substantial rock excavation and cuts through three of the South Mountains' ridges.

How could ADOT reduce or avoid construction-related impacts?

Examples of some of the measures ADOT could undertake to avoid, reduce or otherwise mitigate construction-related impacts include:

- The freeway could be designed to minimize and balance the volume of excavation and fill.
- The Eastern Section alternative could be designed to minimize the total volume of rock excavation.

How could ADOT reduce geotechnical impacts once the freeway were operating?

- ADOT would consider developing specific plans for rock slopes, including slope angles, falling rock protection measures and related design features.

Measures will be presented in the Draft EIS. If an action alternative were to be selected with the Record of Decision, measures would be finalized during the design process.

Are the conclusions presented in this summary final?

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- Ongoing communications with the Gila River Indian Community (Community) regarding granting permission to study action alternatives on Community land
- Potential updates to traffic forecasts as regularly revised by the Maricopa Association of Governments
- Potential changes regarding updated census data
- Regularly updated cost estimates for construction, right-of-way acquisition, relocation and mitigation

Even with these factors possibly affecting findings, the study team anticipates effects would be equal among the alternatives and, consequently, impacts would be roughly comparable. This assumption would be confirmed if, and when, such changes were to occur.



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Geotechnical

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Utilities

Why document analysis of utilities in the Environmental Impact Statement (EIS)?

The Phoenix metropolitan area is growing rapidly and has been since the 1950s. Today's American society expectations are such that public/quasi-public services need to be in place to support this growth. So, as growth creates the need for more transportation infrastructure, it also creates the need for utility infrastructure. At times, the two can conflict.

Without proper planning and coordination, the construction of a major transportation facility like the proposed South Mountain Freeway could require relocation and/or reconstruction of major utility lines providing electricity, phone, sewer, natural gas, water and fiber optics to perhaps millions of people. Relocation and/or reconstruction of major utility lines and corridors can be extremely costly and delay meeting important project milestones. Additionally, a project of this size would likely affect smaller utility lines, irrigation canals and wells.

Utility lines and corridors are abundant in the Study Area. For the proposed project, the study team focused on major utilities and utility corridors that may influence the alignment of the proposed freeway.

What kind of impacts could occur from construction?

In the Western Section of the Study Area, any one of the action alternatives could affect the following major utilities:

- The Roosevelt Irrigation District (RID) Canal (the proposed freeway would have to cross it)
- Two Union Pacific Railroad tracks (the freeway would have to cross them)
- Two major overhead power lines—a Western Area Power Administration (WAPA) 230 kilovolt (kV) line that parallels Elwood Street and a Salt River Project (SRP) 230 kV line adjacent to Broadway Road
- A Kinder Morgan Energy Partners 20-inch high-pressure petroleum pipeline that parallels the Union Pacific Railroad tracks
- A Southwest Gas 10-inch gas pipeline adjacent to Buckeye Road
- Two underground fiber optic lines—a Sprint line parallel to Lower Buckeye Road and an AT&T line adjacent to the RID canal

Individual alternatives would have specific utility impacts:

The ***W55 Alternative*** would potentially affect additional major utilities, including:

- Two 90-inch City of Phoenix sanitary sewer lines along Broadway Road between 59th and 63rd avenues
- Several City of Phoenix 12-inch waterlines along major crossroads
- SRP irrigation laterals
- Multiple power lines
- The Salt Canal along Van Buren Street



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- Multiple Union Pacific Railroad spur tracks near 55th Avenue
- A power substation at 59th Avenue and Lower Buckeye Road—avoidance may be possible in design

The **W71 Alternative** could affect additional major utilities, including:

- Two 90-inch City of Phoenix sanitary sewer lines along Broadway Road between 71st and 75th avenues
- Several City of Phoenix 12-inch waterlines along major crossroads
- SRP irrigation laterals
- Multiple power lines
- The Salt Canal along Van Buren Street

The *W101 Alternative and Options* could affect additional major utilities, including:

W101 Western Option

- A City of Phoenix 66-inch sanitary sewer line
- A Cox overhead fiber optic cable at Van Buren Street and at 99th Avenue
- A City of Tolleson 12-inch water line along Roosevelt Street
- A Qwest underground telephone cable at Van Buren Street
- A RID well
- An SRP well
- SRP irrigation laterals
- Multiple power lines
- Three City of Tolleson 48-inch sewer lines
- Seven City of Phoenix sanitary sewer lines, 60 inches or greater
- Fourteen City of Phoenix wells
- A Kinder Morgan Energy Partners 12-inch petroleum pipeline parallel to Buckeye Road
- Two Cox Cable underground fiber vaults at Lower Buckeye Road and 99th Avenue

W101 Central Option

- A City of Phoenix 66-inch sanitary sewer line
- A Cox overhead fiber optic cable at Van Buren Street and 99th Avenue
- City of Tolleson 12-inch water lines
- A Qwest underground telephone cable at Van Buren Street
- A RID well
- An SRP well
- SRP irrigation laterals



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Utilities

- Multiple power lines
- Four City of Tolleson 48-inch sewer lines
- Eight City of Phoenix sanitary sewer lines 60-inch or greater
- Eight City of Phoenix wells
- A pump station and sewer lift station near Buckeye Road and 95th Avenue
- A Kinder Morgan Energy Partners 12-inch petroleum pipeline parallel to Buckeye Road

W101 Eastern Option

- A City of Phoenix 66-inch sanitary sewer line
- A Cox overhead fiber optic cable at Van Buren Street and 99th Avenue
- City of Tolleson 12-inch water lines
- A RID well
- An SRP well
- SRP irrigation laterals
- Multiple power lines
- Four City of Tolleson 48-inch sewer lines
- Five City of Phoenix sanitary sewer lines, 60 inches or greater
- A City of Phoenix well
- A pump station and sewer lift station near Buckeye Road and 91st Avenue
- A Kinder Morgan Energy Partners 12-inch petroleum pipeline parallel to Buckeye Road

The options vary in the length of utility disruption that could occur as a result of construction.

In the Eastern Section, the ***E1 Alternative*** could affect utilities, including:

- An El Paso Gas natural gas line along 47th Avenue
- Two major overhead power lines—a WAPA 230 kV line at 47th Street and a SRP 500 kV line adjacent to Pecos Road
- A City of Phoenix 48-inch water line along Pecos Road
- A City of Phoenix 48-inch sanitary sewer line along Pecos Road
- Qwest telephone cables
- A Kinder Morgan Energy Partners petroleum pipeline



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Utilities

How would the action alternatives differ in construction-related impacts?

In general, comparison of impacts among alternatives in the Western Section is fairly equal, with the exception of major site facilities, such as railroad spur lines, power substations and pump/lift stations. As noted earlier, some action alternatives may affect longer lengths of utility corridors than others, but the differences in lengths of potential disturbance would be indistinguishable among the action alternatives.

What kinds of freeway operational impacts (postconstruction) would occur?

The study team anticipates no operational impacts on utilities from the South Mountain Freeway.

Would the action alternatives cause any specific and/or unique impacts?

The study team anticipates no unique impacts on utilities from construction and operation of the proposed South Mountain Freeway.

What if the project were not constructed?

No project-specific impacts would be experienced.

What could ADOT do to reduce impacts on utilities once the freeway were operational?

ADOT would look at a number of ways to avoid or reduce operational impacts. Basic mitigation to minimize utility impacts is standard practice in final freeway design. During the final design process, ongoing coordination with utility purveyors would seek to identify such measures as utility encasements and bridge structures to minimize impacts. ADOT would also consider design refinements, such as minor adjustments in alignment or reduction in right-of-way needs, to minimize utility impacts.

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- Potential updates to traffic forecasts as regularly revised by the Maricopa Association of Governments
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